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12/30/2004

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EXAMINER

VITAL, PIERRE M

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 12/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/800,239

Applicant(s)

OHR, JAMES

Examiner

Pierre M. Vital

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to applicant's communication filed November 12, 2004 in response to PTO Office Action mailed August 9, 2004. The Applicant's remarks and amendments to the claims and/or the specification were considered with the results that follow.
2. Claims 1-25 have been presented for examination in this application. In response to the last Office Action, claims 1, 4 and 6-13 have been amended. No claims have been canceled. Claims 14-25 have been added. As a result, claims 1-25 are now pending in this application.
3. The objection to the drawings has been withdrawn due to the amendment filed November 12, 2004.
4. The objection to the specification has been withdrawn due to the amendment filed November 12, 2004.
5. The rejection of claims 9-13 under 35 USC § 101 has been withdrawn due to the amendment filed November 12, 2004.
6. The rejection of claims 1-8 under 35 USC § 112, second paragraph has been withdrawn due to the amendment filed November 12, 2004.
7. The rejection of claims 1-8, as in the Office Action mailed August 9, 2004, is respectfully maintained and reiterated below for applicant's convenience.

Response to Arguments

8. Applicant's arguments filed November 12, 2004 have been fully considered but they are not persuasive. As to the remarks, applicant asserted that:

(a) Yanai does not teach or suggest "the controller configured to detect an application write request to the destination block".

Examiner respectfully traverses applicant's arguments for the following reasons. Examiner would like to point out that at column 9, lines 33-40, Yanai discloses a secondary storage controller 44 which controls writing of data to and from a secondary storage device 48. As a result, in order for the secondary controller 44 to control writing to and from the storage device 48, the controller must detect and arbitrate write requests to the storage device. Thus, it can be clearly seen that Yanai discloses a secondary controller configured to detect an application write request to a destination block.

(b) Yanai does not teach or suggest "a controller configured to stall the application write request while a data mover operation initiated by the data mover is terminated".

Examiner respectfully traverses applicant's arguments for the following reasons. Examiner would like to point out that at column 9, lines 33-40, Yanai discloses a secondary storage controller 44 which controls writing of data to and from a secondary storage device 48. As a result, in order for the secondary controller 44 to control writing to and from the storage device 48, the controller must detect and arbitrate (i.e., stall) write requests to the storage device. Thus, it can be clearly seen that Yanai discloses a

secondary controller configured to stall the application write request while a data mover operation initiated by a data mover is terminated.

9. Applicant's arguments, see Remarks, page 10, Paragraph 4, filed November 12, 2004, with respect to the rejection(s) of claim(s) 9-13 under 35 USC § 101 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yanai et al (6,173,377) and the previously cited Armangau et al (6,549,992) reference.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 4, 7-8, 15-16 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Yanai et al (US6,173,377).

As per claim 1, Yanai discloses a system for protecting a destination block in a disk array from being overwritten, the system comprising:

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a data mover [*data director 32, 68; Fig. 1*]; a controller coupled to the data mover [*controller 16, 44 coupled to respective data director 32, 68; Fig. 1*], the controller configured to detect an application write request to the destination block [*data director 68 controls data transfer over communication bus 70 to which all the elements of the secondary data storage system controller are coupled; Fig. 1; col. 9, lines 17-37-40; controller 44; col. 9, lines 33-40*]; and to stall an application write request while a data mover operation initiated by a data mover is terminated [*current write task is temporarily suspended while awaiting completion of the pending remote write; col. 18, lines 6-16*].

As per claim 4, Yanai discloses a controller configured to complete an application write request upon a termination of the data mover operation [*tasks suspended while waiting completion of a pending remote write are serviced when the remote data storage acknowledges completion of the pending remote write; col. 17, lines 44-50*].

As per claim 7, Yanai discloses a system for protecting a destination block in a disk array coupled to a storage area network from being overwritten by a server write request to the destination block, the system comprising:

a data mover [*data director 32, 68; Fig. 1*]; a controller coupled to the data mover [*controller 16, 44 coupled to respective data director 32, 68; Fig. 1*], the controller configured to detect the server write request [*data director 68 controls data transfer over communication bus 70 to which all the elements of the secondary data storage system controller are coupled including service processor 62; Fig. 1; col. 9, lines 17-37-40; controller 44; col. 9, lines 33-40*]; and to stall the server write

request while a data mover operation is terminated [*current write task is temporarily suspended while awaiting completion of the pending remote write*; col. 18, lines 6-16].

As per claim 8, Yanai discloses a block protection system comprising:

A storage device [*storage devices 20, 48*; Fig. 1]; a data mover [*data director 32, 68*; Fig. 1]; a controller coupled to the data mover [*controller 16, 44 coupled to respective data director 32, 68*; Fig. 1], the controller configured to detect a write request to a destination block of the storage device [*data director 68 controls data transfer over communication bus 70 to which all the elements of the secondary data storage system controller are coupled*; Fig. 1; col. 9, lines 17-37-40; *controller 44*; col. 9, lines 33-40]; and to stall the write request while a data mover operation is terminated [*current write task is temporarily suspended while awaiting completion of the pending remote write*; col. 18, lines 6-16].

As per claim 15, Yanai discloses a method for protecting a block in a disk array from being overwritten, the method comprising:
using a data mover to initiate a data mover operation involving the block [*data director 32, 68 controls data transfer over communication bus 70*; Fig. 1]; using a controller to detect an application write request to the block [*controller 16, 44 coupled to respective data director 32, 68*; Fig. 1], wherein the controller is coupled to the data mover [*data director 68 controls data transfer over communication bus 70 to which all the elements of the secondary data storage system controller are coupled*; Fig. 1; col. 9, lines 17-37-40; *controller 44*; col. 9, lines 33-40]; and

using the controller to stall the application write request until the data mover operation is terminated [*current write task is temporarily suspended while awaiting completion of the pending remote write*; col. 18, lines 6-16].

As per claim 16, Yanai discloses the controller completing the application write request upon a termination of the data mover operation [*tasks suspended while waiting completion of a pending remote write are serviced when the remote data storage acknowledges completion of the pending remote write*; col. 17, lines 44-50].

As per claim 25, Yanai discloses a system for protecting a block in a disk array from being overwritten, the system comprising: means for using a data mover to initiate a data mover operation involving the block [*data director 32, 68 controls data transfer over communication bus 70*; Fig. 1]; means for using a controller to detect an application write request to the block [*controller 16, 44 coupled to respective data director 32, 68*; Fig. 1], wherein the controller is coupled to the data mover [*data director 68 controls data transfer over communication bus 70 to which all the elements of the secondary data storage system controller are coupled*; Fig. 1; col. 9, lines 17-37-40; *controller 44*; col. 9, lines 33-40]; and means for using the controller to stall the application write request until the data mover operation is terminated [*current write task is temporarily suspended while awaiting completion of the pending remote write*; col. 18, lines 6-16].

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 20, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanai et al (US6,173,377).

As per claim 20, Yanai discloses a computer-readable medium comprising computer-executable instructions for protecting a block in a disk array from being overwritten, wherein the instructions are executable to implement:

using a data mover to initiate a data mover operation involving the block [*data director 32, 68 controls data transfer over communication bus 70; Fig. 1*]; using a controller to detect an application write request to the block [*controller 16, 44 coupled to respective data director 32, 68; Fig. 1*], wherein the controller is coupled to the data mover [*data director 68 controls data transfer over communication bus 70 to which all the elements of the secondary data storage system controller are coupled; Fig. 1; col. 9, lines 17-37-40; controller 44; col. 9, lines 33-40*]; and using the controller to stall the application write request until the data mover operation is terminated [*current write task is temporarily suspended while awaiting completion of the pending remote write; col. 18, lines 6-16*].

However, Yanai does not specifically teach a computer readable medium comprising computer-executable instructions for performing the steps of claims 20, 21 and 23. However, one of ordinary skill in the art would have recognized that a computer

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product (i.e., floppy, CD-ROM, etc.) carrying program instructions for implementing a method is generally well known in the art, because it would have facilitated the transportation and installation of the method on other systems. For example, a copy of the Microsoft Windows operating system can be found on a CD-ROM from which Windows can be installed onto other systems, which is a lot easier than running a long cable or hand typing the software into another system. The examiner takes Official Notice of this teaching. Therefore, it would have been obvious to one of ordinary skill in the art to put Yanai's program on a computer readable medium, because it would have facilitated the transporting, installing and implementing of Yanai's program on other systems.

As per claim 21, Yanai discloses the instructions are further executable to implement the controller completing the application write request upon a termination of the data mover operation [*tasks suspended while waiting completion of a pending remote write are serviced when the remote data storage acknowledges completion of the pending remote write*; col. 17, lines 44-50].

As per claim 23, Yanai discloses the instructions are further executable to implement sending a request from the controller to the data mover to initiate a termination of the data mover operation [col. 18, lines 10-14].

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14. Claims 2-3 and 5-6, 9-10, 12, 17-18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanai et al (US6,173,377) and applicant's Admitted Prior Art (hereinafter "AAPA").

As per claim 2, Yanai discloses the claimed invention as detailed above in the previous paragraphs. However, Yanai does not specifically teach the data mover is disposed in the disk array as recited in the claim.

AAPA discloses a data mover disposed in a disk array [*data movers may be functionally implemented in storage device controllers; a disk array may include one or more RAID controllers and a plurality of disk drives as is well known in the art*; pg. 3, lines 14-17] to provide storage consolidation in the data storage system by reducing the rapidly increasing disk bit densities (pg. 1, lines 13-20).

Since the technology for implementing a data mover disposed in a disk array was well known as evidenced by AAPA, and since a data mover disposed in a disk array provides storage consolidation in the data storage system by reducing the rapidly increasing disk bit densities, an artisan would have been motivated to implement a data mover disposed in a disk array in the system of Yanai. Thus, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the system of Yanai to include a data mover disposed in a disk array because it was well known to provide storage consolidation in the data storage system by reducing the rapidly increasing disk bit densities (pg. 1, lines 13-20) as taught by AAPA.

As per claim 3, Yanai discloses the claimed invention as detailed above in the previous paragraphs. However, Yanai does not specifically teach the controller is disposed in the disk array as recited in the claim.

AAPA discloses a controller is disposed in the disk array [*a disk array may include one or more RAID controllers and a plurality of disk drives as is well known in the art*; pg.2, line 16] to provide storage consolidation in the data storage system by reducing the rapidly increasing disk bit densities (pg. 1, lines 13-20).

Since the technology for implementing a controller disposed in a disk array was well known as evidenced by AAPA, and since a controller disposed in a disk array provides storage consolidation in the data storage system by reducing the rapidly increasing disk bit densities, an artisan would have been motivated to implement a controller disposed in a disk array in the system of Yanai. Thus, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the system of Yanai to include a controller disposed in a disk array because it was well known to provide storage consolidation in the data storage system by reducing the rapidly increasing disk bit densities (pg. 1, lines 13-20) as taught by AAPA.

As per claims 5, 17 and 22, Yanai discloses the claimed invention as detailed above in the previous paragraphs. However, Yanai does not specifically teach the data mover provides an extent list including the destination block to the controller as recited in the claim.

AAPA discloses a data mover providing an extent list including a destination block to a controller [*data mover 200 coupled to storage device controller receives the addresses of the source and destination devices and a list of data extents that describe the destination location*; pg. 3, lines 12-16, pg. 4, lines 1-9] to provide greater storage reliability and availability in the data storage system by meeting data protection requirements including efficient and reliable data back-up in the system (pg. 1, lines 13-20).

Since the technology for implementing a data mover providing an extent list including a destination block to a controller was well known as evidenced by APA, and since a data mover providing an extent list including a destination block to a controller provides greater storage reliability and availability in the data storage system, an artisan would have been motivated to implement a data mover providing an extent list including a destination block to a controller in the system of Yanai. Thus, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the system of Yanai to include a data mover providing an extent list including a destination block to a controller because it was well known to provide greater storage reliability and availability in the data storage system by meeting data protection requirements including efficient and reliable data back-up in the system (pg. 1, lines 13-20) as taught by AAPA.

As per claims 6 and 18, Yanai discloses the claimed invention as detailed above in the previous paragraphs. However, Yanai does not specifically teach the controller is

operable to send a request to the data mover to initiate a termination of the data mover operation as recited in the claim.

AAPA discloses a controller configured to send a request to a data mover to initiate a termination of a data mover operation [*data mover 200 is capable of initiating and controlling data movement on the SAN 110*; pg. 2, lines 17-23] to provide storage flexibility in the data storage system.

Since the technology for implementing a controller operable to send a request to a data mover to initiate a data mover operation termination was well known as evidenced by AAPA, and since a controller operable to send a request to a data mover to initiate a data mover operation termination provides storage flexibility in the data storage system, an artisan would have been motivated to implement a controller operable to send a request to a data mover to initiate a data mover operation termination in the system of Yanai. Thus, it would have been obvious to one of ordinary skill in the art, having the teachings of Yanai and AAPA before him at the time the invention was made, to modify the system of Yanai to include a controller operable to send a request to a data mover to initiate a data mover operation termination because it would have provided storage flexibility in the data storage system by allowing the data mover to control the actual data transfer from the source device to the destination device (pg. 1, lines 13-20, pg. 3, lines 1-2) as taught by AAPA.

As per claims 9 and 12, Yanai discloses a method for ensuring the integrity of a storage device comprising: initiating a data mover operation to move an object to the

storage device [*data director 68 controls data transfer over communication bus 70 to which all the elements of the secondary data storage system controller are coupled*; Fig. 1; col. 9, lines 17-37-40]; deriving an extent list describing destination blocks on the storage device, wherein the destination blocks comprise a location to which an the object is being moved by the data mover operation [*ranges or extents of contiguous records can be specified because of track and record identifications*; col. 39, lines 7-12, 52-65]; monitoring for a write request from an application server during the data mover operation [*data director 68 controls data transfer over communication bus 70 to which all the elements of the secondary data storage system controller are coupled*; Fig. 1; col. 9, lines 17-37-40; *controller 44*; col. 9, lines 33-40]; if a write request is detected during the monitoring for the write request, stalling the write request and requesting a termination of the data mover operation [*current write task is temporarily suspended while awaiting completion of the pending remote write*; col. 18, lines 6-16]; and completing the write request after the termination of the data mover operation [*tasks suspended while waiting completion of a pending remote write are serviced when the remote data storage acknowledges completion of the pending remote write*; col. 17, lines 44-50].

However, Yanai does not specifically teach initiating a data mover operation termination; transmitting the extent list to a disk array and verifying the extent list terminating the data mover operation in response to the requesting the termination of the data mover operation as recited in the claim.

AAPA discloses a controller configured to send a request to a data mover to initiate a termination of a data mover operation [*data mover 200 is capable of initiating and controlling data movement on the SAN 110*; pg. 2, lines 17-23] to provide storage flexibility in the data storage system.

Since the technology for implementing a controller operable to send a request to a data mover to initiate a data mover operation termination was well known as evidenced by AAPA, and since a controller operable to send a request to a data mover to initiate a data mover operation termination provides storage flexibility in the data storage system, an artisan would have been motivated to implement a controller operable to send a request to a data mover to initiate a data mover operation termination in the system of Yanai. Thus, it would have been obvious to one of ordinary skill in the art, having the teachings of Yanai and AAPA before him at the time the invention was made, to modify the system of Yanai to include a controller operable to send a request to a data mover to initiate a data mover operation termination because it would have provided storage flexibility in the data storage system by allowing the data mover to control the actual data transfer from the source device to the destination device (pg. 1, lines 13-20, pg. 3, lines 1-2) as taught by AAPA.

AAPA discloses a data mover providing an extent list including a destination block to a controller [*data mover 200 coupled to storage device controller receives the addresses of the source and destination devices and a list of data extents that describe the destination location*; pg. 3, lines 12-16, pg. 4, lines 1-9] to provide greater storage reliability and availability in the data storage system by meeting data protection requirements including efficient and reliable data back-up in the system (pg. 1, lines 13-20).

Since the technology for implementing a data mover providing an extent list including a destination block to a controller was well known as evidenced by AAPA, and since a data mover providing an extent list including a destination block to a controller

provides greater storage reliability and availability in the data storage system, an artisan would have been motivated to implement a data mover providing an extent list including a destination block to a controller in the system of Yanai. Thus, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the system of Yanai to include a data mover providing an extent list including a destination block to a controller because it was well known to provide greater storage reliability and availability in the data storage system by meeting data protection requirements including efficient and reliable data back-up in the system (pg. 1, lines 13-20) as taught by AAPA.

AAPA discloses a controller configured to send a request to a data mover to initiate a termination of a data mover operation [*data mover 200 is capable of initiating and controlling data movement on the SAN 110*; pg. 2, lines 17-23] to provide storage flexibility in the data storage system.

Since the technology for implementing a controller operable to send a request to a data mover to initiate a data mover operation termination was well known as evidenced by AAPA, and since a controller operable to send a request to a data mover to initiate a data mover operation termination provides storage flexibility in the data storage system, an artisan would have been motivated to implement a controller operable to send a request to a data mover to initiate a data mover operation termination in the system of Yanai. Thus, it would have been obvious to one of ordinary skill in the art, having the teachings of Yanai and AAPA before him at the time the invention was made, to modify the system of Yanai to include a controller operable to

send a request to a data mover to initiate a data mover operation termination because it would have provided storage flexibility in the data storage system by allowing the data mover to control the actual data transfer from the source device to the destination device (pg. 1, lines 13-20, pg. 3, lines 1-2) as taught by AAPA.

As per claim 10, the combination of Yanai and AAPA discloses the claimed invention as detailed above in the previous paragraphs. However, Yanai and AAPA does not specifically teach the deriving the extent list, the transmitting the extent list to the disk array, and the verifying the extent list are executed by an application program as recited in the claim.

However, one of ordinary skill in the art would have recognized that a computer product (i.e., floppy, CD-ROM, etc.) carrying application program instructions for implementing a method is generally well known in the art, because it would have facilitated the transportation and installation of the method on other systems. For example, a copy of the Microsoft Windows operating system can be found on a CD-ROM from which Windows can be installed onto other systems, which is a lot easier than running a long cable or hand typing the software into another system. The examiner takes Official Notice of this teaching. Therefore, it would have been obvious to one of ordinary skill in the art to put Yanai's program on a computer readable medium, because it would have facilitated the transporting, installing and implementing of Yanai's program on other systems.

15. Claims 14, 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanai et al (US6,173,377) and AAPA and Armangau et al (US6,549,992).

As per claims 14, 19 and 24, Yanai discloses the claimed invention as detailed above in the previous paragraphs. However, Yanai does not specifically teach a data mover external to the controller as recited in the claims.

Armangau discloses data mover computers 72-75 external to control station server computers 76-77 [Fig. 4, col. 12, lines 31-41] to provide a front end and a back-end for the data storage subsystems to respond to backup and restore commands (col. 12, lines 62-67). Since the technology for implementing a data mover external to a controller was well known as evidenced by Armangau, an artisan would have been motivated to implement this feature in the system of Yanai. Thus, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to include a data mover external to a controller in the system of Yanai because it was well known to provide a front end and a back-end for the data storage subsystems to respond to backup and restore commands (col. 12, lines 62-67) as taught by Yanai.

Allowable Subject Matter

16. Claims 11 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter:

The prior art or record does not teach or suggest "releasing the extent list at the disk array after the completing the write request; and re-verifying the extent list after the releasing the extent list" in combination with the other elements set forth in the claimed invention.

Conclusion

18. The examiner requests, in response to this Office action, any reference(s) known to qualify as prior art under 35 U.S.C. sections 102 or 103 with respect to the invention as defined by the independent and dependent claims. That is, any prior art (including any products for sale) similar to the claimed invention that could reasonably be used in a 102 or 103 rejection. This request does not require applicant to perform a search. This request is not intended to interfere with or go beyond that required under 37 C.F.R. 1.56 or 1.105.

The request may be fulfilled by asking the attorney(s) of record handling prosecution and the inventors)/assignee for references qualifying as prior art. A simple statement that the query has been made and no prior art found is sufficient to fulfill the request. Otherwise, the fee and certification requirements of 37 CFR section 1.97 are waived for those documents submitted in reply to this request. This waiver extends only to those documents within the scope of this request that are included in the application's

first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this request and any information disclosures beyond the scope of this are subject to the fee and certification requirements of 37 CFR section 1.97.

In the event prior art documentation is submitted, a discussion of relevant passages, figs., etc., with respect to the claims is requested. The examiner is looking for specific references to 102/103 prior art that identify independent and dependent claim limitations. Since applicant is most knowledgeable of the present invention and submitted art, his/her discussion of the reference(s) with respect to the instant claims is essential. **A response to this inquiry is greatly appreciated.**

19. The examiner also requests, in response to this Office action, support be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line no(s) in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

20. When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

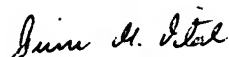
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21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (571) 272-4215. The examiner can normally be reached on 8:30 am - 6:00 pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 27, 2004



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